

217/782-2113

CONSTRUCTION PERMIT -- PSD SOURCE

PERMITTEE

3M Company
Attn: Sumitra Ness
P.O. Box 33331
Building 42-2 E-27
St. Paul, Minnesota 55133-3331

<u>Application No.:</u> 96040074	<u>I.D. No.:</u> 161807AAA
<u>Applicant's Designation:</u>	<u>Date Received:</u> June 6, 2002
<u>Subject:</u> Building 30, Miscellaneous Fluorochemical Operation	
<u>Date Issued:</u>	
<u>Location:</u> 22614 Route 84 North, Cordova	

Permit is hereby granted to the above-designated Permittee to MODIFY emission source(s) and/or air pollution control equipment consisting of the 30-01 and 30-02 electrochemical cell systems each with prescrubber and scrubber and served by auxiliary equipment including attached columns, separators, decanters, product and weigh tanks, and product condensers, and existing equipment in Building 30 for which no modification is sought are 30-08 reactor/receiver system with two-stage scrubber, the 30-09 system with two-stage scrubber, the 30-06 and 30-14 in dependent column systems, and the 30-61 Discotherm (HF recovery unit) with scrubber as described in the above referenced application. This Permit is granted based upon and subject to the findings and conditions which follow.

In conjunction with this permit, approval is given with respect to the Prevention of Significant Deterioration of Air Quality Regulations (PSD) to construct the above referenced equipment, in that the Illinois Environmental Protection Agency (IEPA) finds that the application fulfills all applicable requirements of 40 CFR 52.21. This approval is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 et. seq., the Federal regulations promulgated thereunder at 40 CFR 52.21 for Prevention of Significant Deterioration of Air Quality (PSD), and a Delegation of Authority agreement between the United States Environmental Protection Agency and the Illinois EPA for the administration of the PSD Program. This approval becomes effective in accordance with the provisions of 40 CFR 124.15 and may be appealed in accordance with the provisions of 40 CFR 124.19. This approval is also based upon and subject to the findings and conditions which follow.

Findings

1. 3M Company (3M) has requested a permit to increase the permitted emissions of fluorides from 2 electrochemical cell systems and ancillary equipment at its chemical processing plant at Cordova. This is requested to accommodate manufacture of new products in the systems, which have higher levels of emissions of organic fluoride compounds, which may qualify as fluorides for purposes of PSD.

2. 3M is located in Cordova Township in Rock Island County. The area is currently designated attainment for all criteria air contaminants. The County has a Class II designation for Prevention of Significant Deterioration (PSD) permit review.
3. Following modification, the cells will have potential emissions of 35 tons a year of fluorides, considering any compounds captured using USEPA Method 13 as fluorides. The project is therefore subject to PSD review as a major modification of an existing major source as permitted fluoride emissions increase by more than 3 tons per year.
4. After reviewing all the materials submitted by 3M, Illinois EPA has determined that the project will (i) be in compliance with all applicable Board emission standards and (ii) utilize Best Available Control Technology (BACT) on emissions of fluorides.
5. An air quality analysis has not been required because emissions of hydrogen fluoride will not increase with this project. In addition, permitted emissions of volatile organic compounds, which includes any organic fluorides that are ozone precursors are less than 40 tons per year.
6. The Illinois EPA has determined that the construction of the proposed project complies with all applicable Illinois Air Pollution Control Board Regulations and the federal Prevention of Significant Deterioration of Air Quality Regulations (PSD), 40 CFR 52.21.
7. A copy of the application and the Illinois EPA's formal review of the application and a draft of this permit were placed in a location in the vicinity of the project, and the public was given notice and opportunity to examine this material and to submit comments and to request a public hearing on this matter.

The Illinois EPA is issuing approval to construct the proposed project subject to the following conditions and consistent with the specifications and data included in the application. Any departure from the conditions of this approval or terms expressed in the application would need to receive prior written authorization of Illinois EPA.

Conditions

1. Standard conditions for issuance of construction permits, attached hereto and incorporated herein by reference, shall apply to this project, unless superseded by the following special conditions.
- 2a. Emissions of fluorides from electrochemical cells shall be controlled by a scrubber system consisting of two scrubbers in series.
- b. The scrubber system shall be operated to achieve at least 90% control for hydrogen fluoride, on an hourly-average, based on emission testing in accordance with Condition 5 and proper equipment operation as

determined from the monitoring and recordkeeping required by Condition 6 and 7. This condition shall remain in effect until the task in Condition 2(d) is accomplished.

- c. Within 30 days of assuming the operation of thermal oxidizer (Permit No.: 02010008) from the design/construction firm, the Permittee shall provide a written notification to the Illinois EPA.
- d. On or before April 30, 2004, the Permittee shall notify the Illinois EPA which of the following control options will be used for the cell system:
 - i. Upgrade of existing water scrubber system to a caustic scrubber system to achieve a 98% removal efficiency of HF with installation and demonstration of the caustic scrubber within 9 months of April 30, 2004; or
 - ii. Utilization of the thermal oxidization system to achieve a 98% destruction efficiency of organic fluorides within 9 months of April 30, 2004.

Condition 2(d) represents the application of the Best Available Control Technology (BACT) for fluorides as required by Section 165 of the Clean Air Act.

- 3. Emissions from the 30-01 and 30-02 cell system combined with all other manufacturing operations shall not exceed the following limits:

	<u>Lbs/Hour</u>	<u>Tons/Year</u>	<u>Notes</u>
VOM	8.00	35.0	1
Other Organic Material (NONVOM)	-----	774.0	2
CO	17.00	74.0	--
Particulate Matter	0.80	4.0	--
Fluorides	12.40	35.0	3
Hydrogen Fluoride (HF)	0.68	3.0	--

These limits are based on maximum emission rates indicated in the permit application.

- Notes:
- 1. For purpose of this permit, organic material that meets the definition of photochemically reactive material in IAC 211.4690 shall comply with 35 IAC 215.301 by demonstrating 85% or more reduction in the uncontrolled organic material emission, or organic material emissions less than or equal to 8 lb/hour. Organic material emissions that do not meet the definition of photochemically reactive material as defined in IAC 211.4690 are exempt from 35 IAC 215.301.
 - 2. For the purpose of this permit, other organic material (NONVOM) is organic material as defined in 35 IAC 211.4250 that does not qualify as volatile organic material,

hazardous air pollutants, ozone depleting substances or photochemically reactive organic material.

3. For purposes of this permit, fluorides means fluorides as measured by USEPA Method 13 (40 CFR 60, Appendix A), which would include organic compounds that are called "acid fluorides".
- 4a.
 - i. The emissions of volatile organic material and fluorides from subject equipment shall be measured by an approved testing service within 120 days of a written request by the Illinois EPA. The volatile organic emissions shall be differentiated by specific chemical compound.
 - ii. Emission testing shall also be promptly conducted after a written request by the Illinois EPA, in accordance with such requirement.
- b. Volatile organic material measurements shall be made in accordance with a formal testing procedure submitted in writing to and approved by the Permit Section. Fluoride emission measurements shall be made in accordance with 40 CFR 60, Appendix A, Method 13A or 13B or Method 320 (Fourier Transform Infrared Analysis) to identify individual compounds.
- c. Prior to carrying out these tests, the Illinois EPA's regional office in Peoria and the Illinois EPA's Source Emission Test Specialist shall be notified a minimum of thirty (30) days prior to the expected date of these tests and further notified a minimum of five (5) working days prior to the test of the exact date, time and place of these tests, to enable the Illinois EPA to examine the qualifications of the testing service, to review the conditions under which testing will be performed, and to witness the tests.
- d. Three (3) copies of the Final Report(s) for these tests shall be submitted to the Permit Section within 14 days after the test results are compiled and finalized.
- e. A copy of the Summary of Results, General Information, and Conclusions, as contained in the Final Report, shall also be submitted to the regional office and the Source Emission Test Specialist.
5. Each scrubber shall be equipped with monitoring devices for the following:
 - a. Flow of process gas to the scrubber (on/off).
 - b. Scrubbant flow rates or other appropriate parameters, e.g., pump motor amps, pressure in the water supply line to indicate the flow of scrubbant in the scrubber, or off gas temperature in the scrubber. These devices shall be operated at all times that the scrubber is in use and maintained in accordance with good air pollution control practice.

- 6a. Permittee shall maintain file of the manufacturer's specifications for scrubber and records of the stack test performed for the scrubber.
- b. The Permittee shall maintain records of the following process information for the cell systems.
 - i. The amount of material used in the cell systems for each product or category of product, accompanied by process design information for "consumption" of the organics in raw material by the system, as the Permittee assumes that only a fraction of the organics in raw materials is emitted to the atmosphere as VOM.
 - ii. The maximum hourly emission rates of VOM, NONVOM fluorides, and hydrogen fluoride for each product or categories of products, based on design calculations for the cell systems with supporting information.
- c. The Permittee shall maintain the following operating records for the cell systems:
 - i. Production, by category or subcategory of product as necessary to determine emissions of cell systems.
 - ii. Operating hours of each of the process trains in the cell systems by product or category of product.
- d. The Permittee shall keep inspection, maintenance, and repair logs with date and nature of such activities for the scrubber
- e. The Permittee shall maintain the following records related to emissions from the scrubber:
 - i. Other data, not addressed above, used or relied upon by the Permittee to determine emissions.
 - ii. Monthly and annual emissions of VOM, other organic material, CO, PM, fluorides and HF from scrubber with supporting calculation.
- 7. All records required by this permit shall be maintained for at least three years and shall be available for inspection and copying by the Illinois EPA.
- 8. The Permittee's Annual Emission Report submitted to the Illinois EPA shall include:
 - a. Data on emissions of fluorides, HF and NONVOM from the cell systems along with data for emissions of other pollutants.
 - b. A listing of any periods during the previous year when any limit contained in this permit was exceeded including detailed explanation of the cause for exceedance.

9. All required notifications and reports shall be sent to the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and

Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University
Peoria, Illinois 61614

10. A construction permit covers construction activity taking place on or after the date of issuance of the permit. Even though the issuance of this permit indicates that the Illinois EPA has found that the application for the subject equipment met 35 Ill. Adm. Code 201.155, the standards for issuance of a construction permit, this permit does not cover and in no way condones or approves any construction of the subject emission sources or air pollution control equipment which took place before the date of issuance of this permit.
11. This approval to construct does not relieve the Permittee of the responsibility to comply with all Local, State and Federal Regulations which are part of the applicable Illinois State Implementation Plan, as well as all other applicable Federal, State and Local requirements.

This permit has been revised to increase the permitted emissions of fluorides.

If you have any questions on this, please call Minesh Patel at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:MVP:jar

cc: Region 2
USEPA